

TABLE 2.—Free-air resultant winds (meters per second) based on pilot-balloon observations made near 5 a. m. (E. S. T.) during August 1936
[Wind from N=360°, E=90°, etc.]

| Altitude (m) m. s. l. | Albu- querque, N. Mex. (1,554 m) | | Atlanta, Ga. (309 m) | | Billings, Mont. (1,088 m) | | Boston, Mass. (15 m) | | Cheyenne, Wyo. (1,873 m) | | Chicago, Ill. (192 m) | | Cincin- nati, Ohio (153 m) | | Detroit, Mich. (204 m) | | Fargo, N. Dak. (274 m) | | Houston, Tex. (21 m) | | Key West, Fla. (11 m) | | Medford, Oreg. (410 m) | | Murfress- boro, Tenn. (180 m) | | | |
|--------------------------|---|----------|-----------------------------|----------|------------------------------------|----------|----------------------------|----------|--|----------|---|----------|----------------------------------|----------|--------------------------------------|----------|--------------------------------|----------|--|----------|-----------------------------|----------|------------------------------|----------|-------------------------------------|----------|-----|-----|
| | Direction | Velocity | Direction | Velocity | Direction | Velocity | Direction | Velocity | Direction | Velocity | Direction | Velocity | Direction | Velocity | Direction | Velocity | Direction | Velocity | Direction | Velocity | Direction | Velocity | Direction | Velocity | Direction | Velocity | | |
| Surface..... | 5 | 1.3 | 17 | 0.7 | 320 | 2.2 | 287 | 5.8 | 279 | 2.5 | 206 | 0.7 | 109 | 0.4 | 330 | 0.7 | 108 | 1.5 | 35 | 0.3 | 94 | 2.7 | 268 | 0.9 | 172 | 1.0 | | |
| 500..... | | | 355 | 1.3 | | | 308 | 2.8 | | | 241 | 3.0 | 243 | 3.4 | 297 | 0.5 | 120 | 3.1 | 178 | 4.2 | 104 | 5.7 | 281 | 1.6 | 216 | 5.0 | | |
| 1,000..... | | | 245 | 1.2 | | | 301 | 3.5 | | | 260 | 3.9 | 264 | 6.3 | 272 | 3.1 | 183 | 1.2 | 156 | 3.4 | 109 | 5.2 | 303 | 1.8 | 238 | 4.8 | | |
| 1,500..... | | | 252 | 0.8 | | | 241 | 0.6 | 283 | 5.0 | | | 266 | 6.0 | 272 | 6.4 | 273 | 5.0 | 301 | 2.8 | 138 | 3.4 | 110 | 4.4 | 203 | 0.2 | | |
| 2,000..... | 140 | 1.9 | 164 | 0.2 | 236 | 1.8 | 231 | 5.5 | 275 | 4.5 | 273 | 7.9 | 277 | 5.2 | 279 | 5.5 | 291 | 5.6 | 122 | 3.6 | 111 | 3.6 | 228 | 1.1 | 245 | 1.6 | | |
| 2,500..... | 188 | 2.8 | 354 | 0.6 | 233 | 3.1 | 287 | 6.9 | 269 | 4.0 | 281 | 7.2 | 271 | 5.0 | 278 | 5.9 | 293 | 9.0 | 105 | 3.7 | 108 | 3.3 | 216 | 4.9 | 256 | 1.4 | | |
| 3,000..... | 209 | 2.1 | 60 | 0.9 | 250 | 4.6 | 276 | 8.5 | 268 | 3.4 | 313 | 3.4 | 273 | 4.6 | 279 | 6.1 | 296 | 10.0 | 95 | 4.0 | 112 | 2.4 | 212 | 6.7 | 188 | 2.0 | | |
| 4,000..... | 204 | 1.8 | 75 | 3.7 | 259 | 7.8 | 239 | 7.9 | 258 | 4.5 | 314 | 3.1 | | | 273 | 5.6 | | | 81 | 3.6 | 350 | 1.7 | 218 | 7.5 | | | | |
| 5,000..... | 134 | 2.2 | 52 | 3.2 | 264 | 10.1 | | | 256 | 6.1 | | | | | 283 | 6.4 | | | 107 | 3.9 | | | 226 | 9.5 | | | | |
| Altitude (m) m. s. l. | Newark, N. J. (14 m) | | Oakland, Calif. (8 m) | | Oklahoma City, Okla. (402 m) | | Omaha, Nebr. (306 m) | | Pearl Har- bor, Terri- tory of Ha- waii ¹ (68 m) | | Pensacola, Fla. ¹ (24 m) | | St. Louis, Mo. (170 m) | | Salt Lake City, Utah (1,294 m) | | San Diego, Calif. (15 m) | | Sault Ste. Marie, Mich. (198 m) | | Seattle, Wash. (14 m) | | Spokane, Wash. (603 m) | | Washing- ton, D. C. (10 m) | | | |
| | Direction | Velocity | Direction | Velocity | Direction | Velocity | Direction | Velocity | Direction | Velocity | Direction | Velocity | Direction | Velocity | Direction | Velocity | Direction | Velocity | Direction | Velocity | Direction | Velocity | Direction | Velocity | Direction | Velocity | | |
| Surface..... | 283 | 0.8 | 318 | 1.1 | 182 | 3.9 | 135 | 1.1 | 58 | 4.5 | 59 | 1.3 | 204 | 1.7 | 149 | 3.7 | 12 | 1.1 | 57 | 0.3 | 125 | 1.0 | 97 | 1.6 | 255 | 0.5 | | |
| 500..... | 298 | 4.6 | 234 | 2.4 | 196 | 8.4 | 162 | 4.2 | 72 | 7.9 | 108 | 1.5 | 214 | 6.2 | | | 343 | 0.6 | 200 | 0.7 | 45 | 1.7 | | | 272 | 3.9 | | |
| 1,000..... | 296 | 4.7 | 302 | 3.4 | 210 | 12.9 | 199 | 7.5 | 76 | 8.1 | 146 | 2.1 | 241 | 6.2 | | | 94 | 1.0 | 258 | 3.7 | 352 | 1.5 | 217 | 2.5 | 288 | 4.3 | | |
| 1,500..... | 283 | 4.5 | 280 | 2.7 | 208 | 7.2 | 227 | 7.8 | 85 | 6.7 | 122 | 2.5 | 251 | 5.5 | 153 | 5.9 | 157 | 2.5 | 267 | 5.4 | 328 | 2.0 | 225 | 3.0 | 288 | 5.0 | | |
| 2,000..... | 274 | 4.7 | 236 | 3.1 | 201 | 3.4 | 247 | 7.5 | 106 | 3.8 | 94 | 2.5 | 264 | 4.7 | 172 | 5.5 | 148 | 3.5 | 278 | 6.9 | 287 | 1.6 | 222 | 3.8 | 288 | 5.6 | | |
| 2,500..... | 271 | 6.0 | 217 | 3.3 | 203 | 1.4 | 262 | 6.7 | 111 | 2.7 | 87 | 2.5 | 269 | 4.6 | 197 | 4.6 | 140 | 5.5 | 288 | 8.3 | 245 | 2.5 | 228 | 4.8 | 285 | 6.0 | | |
| 3,000..... | 271 | 8.2 | 221 | 4.4 | 155 | 1.4 | 279 | 6.7 | 127 | 1.8 | 89 | 3.9 | 284 | 5.0 | 221 | 4.4 | 140 | 5.9 | 286 | 8.0 | 239 | 3.0 | 238 | 6.3 | 255 | 4.7 | | |
| 4,000..... | | | 138 | 2.7 | 298 | 6.9 | | | 81 | 4.7 | 289 | 2.7 | | | 232 | 5.8 | | | 288 | 10.9 | 256 | 4.9 | | | 231 | 6.4 | 298 | 5.1 |
| 5,000..... | | | 174 | 2.7 | 302 | 7.4 | | | | | | | | | | | | | | | | | | | | | | |

¹ Navy stations.

RIVERS AND FLOODS

[River and Flood Division, MONTROSE W. HAYES in charge]

By W. J. MOXOM

Small, unimportant floods occurred during August in the Little, Neuse, and Cape Fear Rivers in North Carolina; in the Santee and Savannah Rivers in South Carolina; and in the lower Apalachicola and Choctawhatchee Rivers in western Florida. Losses in the Neuse River district amounted to approximately \$5,000; elsewhere they were negligible.

On August 3 an excessive downpour in the mountains above Walsenburg, Colo., caused a rapid rise in the Cucharas River, which damaged property in Walsenburg to the extent of approximately \$185,000. On August 6 heavy rains in the Fountain River drainage area immediately north of Pueblo, Colo., caused a sharp rise in that stream. Although flood stage was not reported, the losses due to the rapidly rising river amounted to approximately \$41,000.

Unusually low stages prevailed in the Mississippi River and tributaries, and all-time records of low stages were broken at a number of stations. At St. Louis, Mo., the river reached -4.1 feet on the 28th which is the lowest free water stage ever recorded, and 1.1 feet lower than the previous record in 1934. The lowest ice-jam stage was -4.6 on December 29-30, 1933. At Arkansas City, Ark., a stage of -5.0 feet was reached on the 30th, or 1.4 feet lower than the low stage of November 1895.

Table of flood stages during August 1936

[All dates in August, unless otherwise specified]

| River and station | Flood stage | Above flood stages—dates | | Crest | |
|---|----------------|-----------------------------|-----|-------|------|
| | | From— | To— | Stage | Date |
| ATLANTIC SLOPE DRAINAGE | | | | | |
| Little: Kenly, N. C. | 8 | July 31 | | 3 | 10.3 |
| Neuse: | | | | | |
| Neuse, N. C. | 14 | | | | 13.8 |
| Smithfield, N. C. | 13 | July 31 | | 3 | 17.0 |
| Goldsboro, N. C. | 14 | | | 8 | 17.2 |
| Kinston, N. C. | 14 | 6 | | 10 | 15.3 |
| Cape Fear: Lock no. 2, Elizabethtown, N. C. | 20 | 1 | | 3 | 22.3 |
| Santee: | | | | | |
| Rimini, S. C. | 12 | | | 17 | 13.0 |
| Ferguson, S. C. | 12 | | | 18 | 12.3 |
| Savannah: Ellenton, S. C. | 14 | 3 | | 5 | 15.5 |
| EAST GULF OF MEXICO DRAINAGE | | | | | |
| Apalachicola: Blountstown, Fla. | 15 | { | 3 | 5 | 15.5 |
| Choctawhatchee: Caryville, Fla. | 12 | 4 | 7 | 7 | 12.6 |
| MISSISSIPPI SYSTEM | | | | | |
| Arkansas Basin | | | | | |
| Purgatoire: Higbee, Colo. | 2 | | | 7 | 4.5 |
| Arkansas: | | | | | |
| Fort Lyon, Colo. | 6 | | | 7 | 6.7 |
| Great Bend, Kans. | 5 | 12 | | 12 | 5.4 |
| | | | | | 12 |